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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/749,893	12/29/2000	Robert Palifka	09991-014001	6685

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EXAMINER

NGHIEM, MICHAEL P

ART UNIT PAPER NUMBER

2863

DATE MAILED: 11/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/749,893	Applicant(s) PALIFKA ET AL.	
	Examiner Michael P Nghiem	Art Unit 2863	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 August 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 29-33, 35-45, 48-52, 54-58 and 60-102 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 44, 45, 48, 50, 51, 54, 66-100 and 102 is/are allowed.
- 6) ☒ Claim(s) 29-33, 36-39, 43, 52, 55-58, 60-65 and 101 is/are rejected.
- 7) ☒ Claim(s) 35, 40-42, 49 and 62-64 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>5-24-04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

The Amendment filed on August 19, 2004 has been acknowledged.

Withdrawal of Allowability

1. The indicated allowability of claims 34 (cancelled, now incorporated in claim 29), 47 (cancelled, now incorporated in claim 44), 53 (cancelled, now incorporated in claim 52), and 74 (also incorporated in claim 101) is withdrawn in view of the newly discovered reference(s) to Moynihan et al. (US 6,755,511). Rejections based on the newly cited reference(s) follow.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

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Claims 29-33, 37-39, 52, 54-57, 60, 61, and 101 are rejected under 35 U.S.C. 102(e) as being anticipated by Moynihan et al. (US 6,755,511).

Regarding claims 29, 32, 52, 57, and 101, Moynihan et al. discloses an ink jet printing module and method (2) comprising a piezoelectric element (34, 34') having a surface (Fig. 5), and a thermoplastic bonding component (epoxy, column 3, lines 2-3), the thermoplastic bonding component having dimensions of a surface of a first component (30, 30', Fig. 5) heat-bonded to the surface of the piezoelectric element (column 3, lines 2-3), wherein the piezoelectric element includes lead zirconium titanate (PZT, column 2, lines 58-59) and the thermoplastic bonding component has a thickness between 10 micron and 125 microns (15 microns, column 5, lines 64-67).

Regarding claims 30 and 55, Moynihan et al. discloses that the thermoplastic bonding component includes a first surface heat-bonded to the surface of the piezoelectric element and a second surface heat-bonded to a surface of a component of the ink jet printing module (epoxy is between 30, 30' and 34, 34', column 3, lines 2-3).

Regarding claims 31 and 56, Moynihan et al. discloses the thermoplastic bonding component includes an electrode pattern (due to electrode pattern of 30, Fig. 3).

Regarding claim 33, Moynihan et al. discloses that the thermoplastic bonding component has a thickness between 1 micron and 150 microns (15 microns, column 5, lines 64-67).

Regarding claims 37 and 52, Moynihan et al. further discloses an ink channel (33, 33'), the piezoelectric element being positioned to subject ink within the channel to jetting pressure (column 2, lines 31-33), and electrical contacts arranged for activation of the piezoelectric element (column 2, lines 44-49).

Regarding claims 38 and 60, Moynihan et al. discloses a series of channels (33, 33').

Regarding claims 39 and 61, Moynihan et al. discloses that each of said channels is covered by a single piezoelectric element (Fig. 2).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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Claims 36 and 58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moynihan et al. in view of Tsuji et al. (EP 1 193 280).

Moynihan et al. discloses all the claimed limitations as discussed above except that the thermoplastic bonding component includes an adhesive polyimide.

Nevertheless, Tsuji et al. discloses that epoxy and adhesive polyimide are well-known for their mechanical characteristics (Abstract, lines 1-2).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to include an adhesive polyimide in Moynihan et al. for the purpose of obtaining superior mechanical characteristics.

Claims 29-33, 37-39, 52, 55-57, 60, 61, and 101 are rejected under 35 U.S.C. 103(a) as being unpatentable over DeYoung et al. (US 4,751,774) in view of Moynihan et al..

Regarding claims 29, 32, 52, 57, and 101, DeYoung et al. discloses an ink jet printing module and method of manufacturing same (Fig. 3) comprising a piezoelectric element (12) having a surface (Fig. 1), and a thermoplastic bonding component (14), the thermoplastic bonding component having dimensions of a surface of a first component (16) heat-bonded to the surface of the piezoelectric element (via thermoplastic cement

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14), wherein the piezoelectric element includes lead zirconium titanate (column 5, lines 9-12).

Regarding claims 30 and 55, DeYoung et al. discloses that the thermoplastic bonding component includes a first surface heat-bonded to the surface of the piezoelectric element (Fig. 1) and a second surface heat-bonded to a surface of a component of the ink jet printing module (Fig. 1).

Regarding claims 31 and 56, DeYoung et al. discloses that the thermoplastic bonding component includes an electrode pattern (pattern of 18's, Fig. 2).

Regarding claims 37 and 52, DeYoung et al. discloses an ink channel (column 1, lines 6-8, 22's, Figs. 2, 3), the piezoelectric element being positioned to subject ink within the channel to jetting pressure (Fig. 6), and electrical contacts arranged for activation of the piezoelectric element (contacts of 32).

Regarding claims 38 and 60, DeYoung et al. discloses a series of channels (column 1, lines 6-8, 22's, Figs. 2, 3).

Regarding claims 39 and 61, DeYoung et al. discloses that each of said channels is covered by a single piezoelectric element (26).

However, regarding claims 29, 33, 52, and 101, Deyoung et al. does not disclose that the thermoplastic bonding component has a thickness between 10 micron and 125 microns.

Nevertheless, Moynihan et al. discloses that the thermoplastic bonding component has a thickness between 1 micron and 150 microns (15 microns, column 5, lines 64-67) for the purpose of effectively bonding a piezoelectric element to a flex print element (column 3, lines 2-3).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the thickness of thermoplastic bonding component of DeYoung et al. to that taught by Moynihan et al. for the purpose of effectively bonding a piezoelectric element to a flex print element.

Claims 43 and 65 are rejected under 35 U.S.C. 103(a) as being unpatentable over DeYoung et al..

DeYoung et al. further discloses an orifice plate (42) and a protector strip (44) adhered to the orifice plate (Fig. 6).

Furthermore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to provide either the orifice plate or protector strip of

DeYoung et al. with a thermoplastic bonding material for the purpose of bonding the protector strip to the orifice plate.

Claims 36 and 58 are rejected under 35 U.S.C. 103(a) as being unpatentable over DeYoung et al. in view of Moynihan et al. as applied to claims 29 and 52 above, and further in view of Tsuji et al..

DeYoung et al. as modified discloses all the claimed limitations as discussed above except that the thermoplastic bonding component includes an adhesive polyimide.

Nevertheless, Tsuji et al. discloses that adhesive polyimide are well-known for their mechanical characteristics (Abstract, lines 1-2).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to include an adhesive polyimide in Moynihan et al. as modified for the purpose of obtaining superior mechanical bonding characteristics.

Allowable Subject Matter

4. Claims 35, 40-42, 49, and 62-64 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

5. Claims 44, 45, 48, 50, 51, 54, 66-100, and 102 are allowed.

Reasons For Allowance

6. The combination or method as claimed wherein the thermoplastic bonding component has a thickness between 20 micron and 50 microns (claims 35, 54) or the thermoplastic bonding component includes a filter (claims 40, 44, 45, 49, 100, 102) is not disclosed, suggested, or made obvious by the prior art of record.

Response to Arguments

7. Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.

Contact Information

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Nghiem whose telephone number is (571) 272-2277. The examiner can normally be reached on M-H from 6:30AM – 5:00 PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached at (571) 272-2269. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

A handwritten signature in black ink, appearing to read "Michael Nghiem", with a stylized flourish at the end.

MICHAEL NGHIEM
PRIMARY EXAMINER

Michael Nghiem

November 5, 2004